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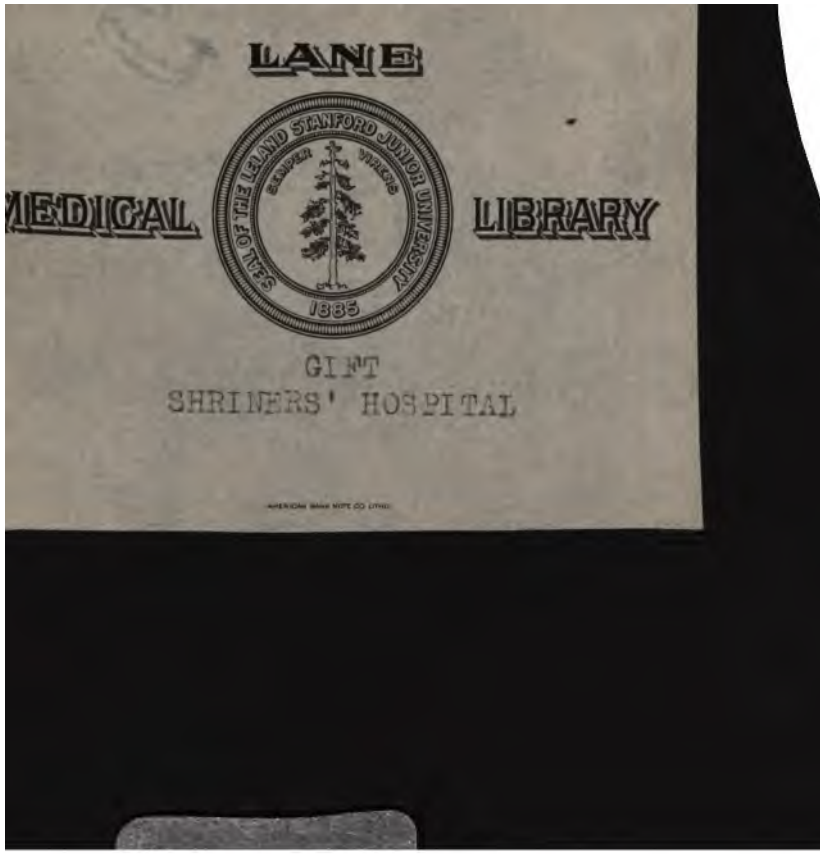
SOME COMMON REMEDIES

AND

THEIR USE IN PRACTICE

EUSTACE SMITH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SOME COMMON REMEDIES

AND

THEIR USE IN PRACTICE

BY

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PREFACE

IN these days we hear much of "modern methods of treatment," and there is no doubt that the recent advances in our knowledge of the pathology of infection and the influence of micro-organisms upon animal life have opened to us a new class of remedies and suggested many important changes in the management of disease. The value of these special cures in special cases, and their superiority over the old plans of treatment to which they have been preferred, no practical physician would venture to deny. But, after all, the cases so benefited are special cases, limited in number; and although in the future this line of treatment will probably be greatly extended, we are not yet in a position to maintain that because we have improved upon our predecessors in one direction, all their methods are to be condemned and their remedies despised.

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One of the results of this widened therapeutical outlook seems to be that the new subject of bacteriology has come to occupy a disproportionate space in the mind of the student, and that in his devotion to it he is led to neglect general treatment altogether, and to forget that patients, when they come to him for advice, will expect to be cured. But drugs have still their value, and have not yet been superseded by antitoxic serums and vaccines. The writer has often been struck by the want of therapeutical knowledge shown by the young men, newly qualified, who apply for resident posts at our hospitals—men willing to learn, and probably familiar with the latest niceties of bacteriological research. Many of them seem to be of opinion that when they have made a diagnosis their duty is at an end, and that the most exacting patient can ask for no more; while those who proceed to treatment, if they order drugs at all, do so in a haphazard way, evidently little aware of the capabilities of the remedies they employ, or of the necessity of suiting them to the condition they are expected to relieve.

Now, every drug has many different uses, and may be made beneficial or the reverse according to the judgment and knowledge with which it

is prescribed. This the young practitioner, when he has left hospital practice behind him and turned his knowledge and abilities to private work, soon begins to discover. He quickly finds that his ignorance of general therapeutics is a source of continual embarrassment, and he is driven late in the day to make good his deficiencies and acquire some definite working knowledge of the remedies with which he is expected to deal.

The following chapters are reprints of papers contributed to *The British Medical Journal* at intervals during the years 1908 and 1909. Of these, the first—that on tartarated antimony—was written as a protest against the present unreasonable neglect of a remedy which was formerly held in the highest esteem, and is still as capable as ever of rendering excellent service in the cure of disease. This paper was submitted to the editor with some misgivings lest it should be considered a mere repetition of old and familiar material. So far, however, was this from being the case, that, not a little to the writer's surprise, the contribution excited much interest amongst the younger members of the profession, who in many letters expressed their appreciation of the information it conveyed

The writer was, in consequence, encouraged to continue the series, and now, in reply to many applications, reproduces it in book form for the benefit of readers who had no opportunity of seeing the papers on their original publication.

LONDON, *December* 1909.

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SOME COMMON REMEDIES

CHAPTER I

ON AN UNJUSTLY NEGLECTED REMEDY (TARTARATED ANTIMONY)

IN these days of progress, when the home of every registered practitioner is flooded with a ceaseless stream of pamphlets acclaiming the virtues of new synthetic drugs, it may be useful to spare a thought to some of the old remedies which are fast slipping out of mind and are in great danger of being forgotten. Of the new drugs, if past experience is to be trusted as a guide, few are likely to prove of permanent value. In comparatively recent times how many of such remedies have been placed with more or less flourish upon the market, but only to be laid quickly aside as disappointing if not alto-

gether useless! Few have outlived the test of adequate trial. After a short experience of such failures one is disposed to cling more and more firmly to remedies which have stood the test of time and whose value was once universally acknowledged. Of these some have been neglected owing to our change of view with regard to the management of disease and the complete disuse of the antiphlogistic method of treatment. Fevers and inflammatory or catarrhal conditions which used to be treated indiscriminately by measures directed to the reducing of a supposed "plethora"—by which term was understood either a general hyperæmia or a local determination of blood—are now managed upon a very different plan, and bleeding, together with the free internal use of potassio-tartrate of antimony, has been abandoned in favour of ammonia and other drugs of similar action. But because antimony in full doses produces profound discomfort and depression, it does not follow that the drug, if given in more moderate and prudent quantity, is not a remedy of the utmost value.

In catarrhal states of mucous membrane antimony has never been dislodged from its eminence by later substitutes. In cases of bronchitis and

bronchial catarrh its neglect is the more to be deplored because there is no other drug of approximate value which can be given in its place—at any rate with equal advantage. On this subject—the treatment of bronchitis—I find the most erroneous views (as I think them) prevailing amongst the younger generation of medical practitioners. A young house-physician will order a patient who is suffering from a severe pulmonary catarrh a mixture containing carbonate of ammonia and other stimulating expectorants as a matter of course and in total disregard of the stage of the derangement or the character of the symptons. But in the management of a bronchial catarrh each class of remedy has its own time for serviceable action, and is useless or worse than useless if given out of its due season. The whole treatment of this derangement consists in unloading the congested vessels and setting up free secretion as a first and indispensable step before making any attempt to reduce the amount of expectoration. As long as the cough is hard, secretion is to be encouraged and not checked. To give ammonia, squill, paregoric, and other stimulating and antispasmodic drugs in the early stage of the catarrh is to make the cough harder

and the chest tighter, and greatly to aggravate the discomfort of the patient if not to produce worse ill-consequences. By such means I am convinced that what should have been a mild indisposition has often been aggravated into a serious illness by driving the catarrh further and further into the minuter tubes, and that in children a moderate bronchitis has not seldom been turned into a broncho-pneumonia. The use of these remedies should be reserved strictly for the later stages of the catarrh when the cough has become perfectly loose from a free secretion of mucus. The earlier remedies have then finished their work, and the time has come for stimulants and astringents to take their place, and begin their task of bracing up the relaxed mucous membrane and guiding the complaint to a satisfactory issue. Antimony is not employed with any view of depressing the patient, and therefore it is advisable to prescribe it in small doses, frequently repeated, rather than in larger doses given at longer intervals. It not only acts more efficiently when used in this way, but its effect can be more easily noted, and the dose repeated more or less often according as it may seem desirable. It is well to combine the drug with nitrate of potash, acetate

of ammonia, spirits of nitrous ether, or such other things as have a diaphoretic action upon the skin, for all these exercise a similar influence upon the bronchial mucous membrane. The most convenient form is the vinum antimoniale, of which a dose of from 2 or 3 to 10 or 15 minims, according to the age and condition of the patient, may be given, combined as above, every hour or two hours as long as the symptoms are acute. Great severity in the attack is no bar to the use of the drug; indeed, the opposite is the case, for when the distress is great, the breathing difficult, the coughing hacking and incessant, and the pulse small and feeble, the beneficial effects of the remedy are the most decided, and it will be noted that the lividity and discomfort abate and the feeble pulse gets fuller and stronger as the secretion from the lungs gets more and more abundant and free. In these severe cases the remedy should be pushed with a prudent liberality, for peddling doses are not only useless, but lose valuable time, while any signs of depression which may occur can be relieved by appropriate alcoholic stimulation.

In the early stage of broncho-pneumonia in children antimony is a remedy of undoubted

value. It is most useful at the period when the consolidation is still in patches, and before large areas of lung have become implicated, giving rise to definite bronchial respiration and all the signs of wide consolidation. It is also at this early stage that the belladonna treatment is so valuable, and the two remedies may be combined, giving 10 or 15 minims of the antimonial wine with ¼ grain of the alcoholic extract of belladonna every two or three hours until the pupils begin to dilate. In bad cases the belladonna should be pushed still further so as to induce a mild delirium. If this be done—and it can be done with perfect safety—the fatal issue may be sometimes averted even in a case which seemed to be of a perfectly hopeless character. In broncho-pneumonia, as in bronchitis, antimony is useful only in the earlier period of the complaint, and should be discontinued at once when obvious signs of lung consolidation have become established.

Another disease which is greatly benefited by the use of antimony is stridulous laryngitis (catarrhal croup) in its early stage. Dr. Cheyne used to speak of the remedy as the only medicine to be trusted when the complaint had become fully developed, and declared that it

had been his sheet-anchor for thirty years. To produce its full effect the remedy should be administered in frequent doses of 10 or 15 drops of the wine so as to induce a slight feeling of nausea. In very bad cases it may be advisable to excite one effort of vomiting, but afterwards smaller doses should be prescribed and repeated every hour or so until the acute symptoms have subsided. Hot fomentations to the throat add materially to the success of this treatment. If the child be old enough, the local application of a weak solution of tartarated antimony ($\frac{1}{4}$ gr. to the ounce of water) may be resorted to; and if the patient can be induced to inhale deeply as the solution is sprayed into his throat, for a minute at a time, the violence of the spasm is quickly reduced. Unfortunately this expedient is unfitted for very young children whose co-operation can be rarely depended upon. In this complaint, as in the case of bronchitis and broncho-pneumonia the internal use of antimony is to be restricted to the acute stage when the temperature is raised and the distress great. At a later period, if the spasm persists, antimony ceases to be of value and should be exchanged for the liquid extract of grindelia. This subject — the treatment of

spasm—is referred to in greater detail elsewhere (see page 72).

In addition to laryngitis the weak antimonial spray is useful in all inflammatory conditions of the throat. An ordinary pharyngitis yields to a few applications of the spray; and in follicular pharyngitis and quinsy the course of the complaint is shortened and its discomforts very materially reduced by the local use of this invaluable remedy.

There is another use for the antimonial salt which must not be forgotten. It is a recognized fact that all nauseating remedies when given in minute doses lose their irritating properties and become gastric sedatives. Good examples of this law are seen in the case of ipecacuanha and zinc sulphate. Ipecacuanha wine given in doses of one minim in a teaspoonful of water is now a familiar remedy in cases of vomiting; and sulphate of zinc in doses of $\frac{1}{12}$ to $\frac{1}{6}$ grain, taken before food in a fluid drachm of some bitter infusion, is one of the most trustworthy and satisfactory of stomachics. In the same way antimony prescribed in doses of 1 or 2 minims of the wine is a useful addition to the prescription in cases of gastric derangement, and contributes materially to its curative value. An

old-fashioned remedy for gastric pain occurring after meals contains 1½ grain of tartarated antimony with 1 ounce of magnesia, 6 drachms of sodium bicarbonate, and 5 drachms of tartaric acid; of this powder one teaspoonful is ordered to be taken in half a tumbler of water when the pain begins. In cases of flatulent dyspepsia accompanied by severe pains after all food I have found this treatment not only to afford temporary relief, but to have a decidedly curative effect upon the derangement.

Again, it must not be forgotten that antimony is not without value as a hepatic stimulant. It is to this quality that it owes its inclusion in the old pharmacopœia preparation known as "Plummer's pill," in combination with calomel and guaiacum. Moreover, by its influence in promoting secretion from the intestinal mucous membrane, the drug is a useful addition to the aperient in cases of chronic constipation where the stools are exceptionally dry and hard. A small quantity of the tartarated salt ($\frac{1}{3\,5}$ grain to $\frac{1}{3\,0}$ grain) may be combined with podophyllin ($\frac{1}{6}$ grain), compound extract of colocynth ($\frac{1}{2}$ grain), extract of belladonna ($\frac{1}{6}$ grain), and extract of nux vomica ($\frac{1}{6}$ grain), in a pill to be taken each evening before dinner. In its value

as a gastric and general tonic antimony may be compared to another salt—the perchloride of mercury. The latter, if given perseveringly in small doses, is a remedy highly to be prized even in cases which are connected in no way with the constitutional disease for which it is generally acknowledged to be a specific. In certain derangements of the lower bowel the usefulness of perchloride of mercury is well known ; but it is not equally well known that if ordered in doses of 10 or 15 minims of the pharmacopœia solution in combination with half that quantity of the tincture of perchloride of iron, and taken well diluted with water three times a day after food, the remedy is of extreme value in chronic tuberculous disease of bone, and if persevered with for a few months will usually effect a decided change for the better. In using this method no fear need be entertained of producing salivation or any of the untoward consequences of the overuse of the drug.

In small doses antimony is of value also for its action in inflammatory conditions of the skin. In eczema, whether acute or chronic, the drug is one of the most satisfactory of internal remedies if continued perseveringly.

I have found five drops of the wine taken as an adult dose in a teaspoonful of water immediately after each meal to produce speedy improvement in cases of long standing when arsenic and other remedies have been prescribed without any beneficial result. This quality of the drug is well recognized by dermatologists; indeed, so far as I can gather, in these days the remedy is practically confined to the treatment of skin diseases, at any rate amongst the newer school of practitioners.

In old times antimony was prescribed for very many other complaints, but in all of these the drug has been displaced by other and equally successful remedies. I do not advocate a return to antimony in such cases as these, where later methods of treatment give satisfactory results, but only regret that in cases for which it is especially serviceable the drug should be made use of so rarely. No doubt it is still retained in stock mixtures of the various hospital pharmacopœias, and is therefore in common use in those institutions; but it is retained only because it has always formed a part of the prescription, and not on account of a wish to make use of this particular drug. Outside a hospital the remedy is practically

ignored, and of late years I have rarely known it to be prescribed by practitioners of the modern school upon their own initiative. The prejudice against it which nowadays appears to exist is derived from the abuse and not the use of the drug. With our present views we do not, as formerly, prescribe the salts of antimony with any desire of producing a profound sedative effect upon the vascular and muscular systems, so that even in pushing the remedy we are careful to limit our efforts to obtaining free secretion from the mucous surfaces and the skin. For this latter purpose, however, antimony remains pre-eminent; and in passing it by the practitioner wilfully abandons a resource which he can ill spare, and which newer remedies may supersede but cannot replace. As has already been stated, the drug should always be prescribed in small doses given frequently, for it is by this means only that the best effects can be obtained without risk of lowering the patient and giving rise to unwelcome signs of depression.

CHAPTER II

ON THE INTERNAL USE OF THE OIL OF TURPENTINE

AMONGST the old remedies which in these days are fast falling into disuse, oil of turpentine stands out as a prominent example of undeserved neglect. In experienced hands the oil is often capable of bringing relief in cases where more modern and fashionable remedies have been given with very inadequate and unsatisfactory results. In the matter of hæmorrhages, for instance, so many newer specifics have been placed upon the market that the value of turpentine in arresting the effusion of blood is now comparatively seldom referred to.

This modern avoidance of a most serviceable drug may be due in some measure to vague apprehensions as to possible irritation of the kidneys by the use of the oil, and perhaps to

some natural repugnance to the taste of the remedy. With regard to the latter point the oil can be given made up into capsules; but if comparatively small doses are required, it acts more efficiently and is fairly well disguised if it be rubbed up with the mistura amygdalæ of the *British Pharmacopœia*, well sweetened, and flavoured with oil of cloves. As to irritation of the kidneys, small doses such as 5 or 10 minims have little tendency to produce this result, and in large aperient doses (2 to 4 drachms and upwards) the action of the drug is upon the bowels, and little of the oil gets absorbed into the circulation to pass through the kidneys and give rise to irritation. Either small doses or very large ones, then, may be given without misgiving. It is only the moderate dose of 30 to 60 drops which is to be used with caution and its effect upon the kidneys heedfully observed.

Any one who wished to test the value of turpentine as a hæmostatic should note its curative influence upon a case of hæmorrhagic purpura. For years I have been in the habit of treating such cases—when the complaint occurs, as it does so often, in well-nourished, full-blooded children—with purgatives, and

look upon oil of turpentine given in conjunction with castor oil as the best form in which the aperient can be administered. Now, it is only in large doses that turpentine has any appreciable aperient effect, and therefore to give it value in a case of purpura we must see that enough is taken to secure the result we desire. I have found that for a child of five or six years of age a dose of less than two drachms of the remedy combined with an equal quantity of castor oil has no aperient action upon the bowels, nor any visible influence in checking the effusion of blood. If the dose first given is insufficient, the quantity may be increased without fear of doing harm; and for children of ten or twelve years I have prescribed as much as ½ oz. each of the two oils, given every morning or every other morning, not only without any ill consequences, but with great benefit to the patient. In one case in my recollection there was some hæmorrhage from the kidney, but whether this symptom was to be ascribed to the general hæmorrhagic tendency or to the special action of the remedy I cannot say. I think the former; at any rate it ceased with the other hæmorrhages after the turpentine had been discontinued.

Turpentine is not a violent aperient, as any one can judge for himself if he will make trial of it in a suitable case. After using it for many years I can confidently assert that given as an aperient in the manner recommended the drug is as harmless as colocynth and far less drastic in its action. The best time for its administration is an hour after food, and the patient should be enjoined to remain quiet for another half-hour after the dose has been taken. I must again insist upon the importance of prescribing the oil in ample purgative measure in a case of purpura if we wish to secure its full action as a hæmostatic. I have given small doses of 5 or 10 minims in the same class of case, and repeated them every four hours or so, but cannot report favourably upon the result, for the hæmorrhagic tendency appeared to be in no way lessened by this method of using the remedy. In the larger quantity, however, oil of turpentine given in conjunction with castor oil may justly be regarded as a specific, for a long experience has proved to me that a dose of 2 to 4 drachms given once in the day, either morning or evening, for a week or so will in the large majority of cases put an end to the disorder before the

seven days have elapsed. In cases where it has not succeeded—and one meets with these from time to time—I have noticed that the aperient effect of the drug is uncertain and ineffectual. In other words, the dose has been insufficient and should be increased; for it is only in cases such as these, where the quantity taken has been too small to induce a copious action of the bowels, that the oil is apt to get absorbed into the circulation in sufficient amount to irritate the kidneys and cause hæmaturia. But even if this symptom should occur, there is no reason for alarm, for the hæmorrhage ceases quickly when the drug is discontinued. I may repeat that this form of treatment is only successful with the sturdy, well-nourished children in whom the disease breaks out suddenly upon a state of health. The weakly, wasted infants, who are also apt to suffer from the complaint, require very different medication.

Besides purpura, other forms of hæmorrhage may be arrested by the free internal use of turpentine. In hæmophilia a brisk terebinthinate aperient will sometimes bring about a cessation of the bleeding after local styptics have been tried in vain. If necessary, the

dose may be repeated in six or eight hours. Great pallor and apparent weakness in the patient furnish no objection to this method of treatment.

I have often noticed, and not without amusement, a look of surprise and almost of alarm on the face of a medical colleague when I have recommended the administration of oil of turpentine in aperient dose for a child, as if the suggestion were a novel and daring device of my own invention. But the internal use of turpentine in substantial dose is no new thing. As a remedy for purpura it was first introduced many years ago by Dr. Neligan, who gave 2 fluid drachms night and morning to a child five years of age. Sir Thomas Watson recommended its employment in chorea. As an anthelmintic its value has long been established; and in cases of tapeworm Dr. Mason Good used to advise 1 oz. to be given in a single dose to a child of ten. Many of the old writers extol the virtues of large doses of the remedy in various forms of illness. Dr. Graves recommends it in doses of 6 drachms every six hours in cases of continued fever, and also in "considerable" doses for the nervous headaches of hysterical girls. Other autho-

rities advocate its use, always in large doses, in puerperal fever (Brennan, Copland, etc.), epilepsy (Cheyne), flatulent colic and ileus (Copland), and in bronchitis associated with emphysema (Corrigan, Waters). The above authorities give no hint that early life is any bar to the use of the remedy—indeed, in some cases they definitely recommend its employment for children of tender years.

Local bleedings, such as hæmoptysis and the melæna of enteric fever, may be judiciously treated by the same remedy, but in smaller doses. I have seen arrest of the hæmorrhage to occur in both of these complaints under the use of the drug in doses of 10 or 15 minims three times a day; but its effect, when thus administered, is much more uncertain than in the case of the aperient doses recommended for purpura.

In addition to hæmorrhages other complaints are found to be benefited by turpentine in more moderate but still substantial dose. For iritis in the adult patient, both the syphilitic and rheumatic forms, oil of turpentine in drachm doses, given three times a day, was at one time a remedy held in high esteem. It was introduced as such by Carmichael in the year 1829,

and recommended especially for cases in which mercury was held to be unsuitable. Its value for this purpose was confirmed by Arnott and others; and I am told by Dr. Dawson Williams that he has himself seen the oil used in this manner by the late Mr. Wharton Jones with conspicuous success. Copland and Hockin found it useful in cases of amaurosis; and night blindness has also been cured by this means. The oil should be given in the dose and with the frequency recommended above. If strangury be produced, the use of the oil must be suspended, and the patient made to drink freely of linseed tea, as originally advised by Mr. Carmichael.

One of the most valuable uses of turpentine is its internal administration in small doses as an antiseptic and sedative in cases of flatulent colic and unhealthy states of the intestinal mucous membrane. In the abdominal cramps to which children are subject, 3 or 4 minims of the rectified oil of turpentine, with or without double the quantity of castor oil, may be given three times a day rubbed up with a spoonful of mistura amygdalæ. If the attacks are severe, a small quantity of codein may be added. In cases of tubercular perito-

nitis, I have found much benefit from this combination. Thus, for a child of seven or eight years we may order 4 minims of oil of turpentine, and 20 of the spirits of nitrous ether, with $\frac{1}{8}$ grain of codein, to be made into an emulsion with the almond mixture, and taken three times a day. The addition of some extract of liquorice still further disguises the strong taste of the turpentine. If there be much tympanitis the external application of turpentine on hot flannel may be used in addition. Codein is a better sedative than morphine or chlorodine in cases of abdominal discomfort on account of its small tendency to constipate the bowels.

Young children who are brought up by hand, and sometimes even infants reared at the breast, are apt to suffer from an aggravated form of flatulence and colic which may even give rise to convulsions. Such cases are often greatly relieved by turpentine in minute doses given with a few drops of castor oil. The remedy acts upon the kidneys, and sometimes also upon the bowels as well. For an eight-months' child we may order 1 minim of the rectified oil to be rubbed up with 3 minims of castor oil and 2 grains of gum tragacanth.

This must be made up to a teaspoonful with water. For such young patients the taste may be disguised successfully by adding to each ounce 1 drachm of the liquid extract of liquorice, 5 drops of the oil of cloves, and 20 drops of spirits of chloroform. It should be given every four hours in doses of one teaspoonful, and will do much to prevent the distressing accumulation of wind. If the paroxysms of colic are severe, $\frac{1}{30}$ grain of codein may be added to the mixture.

In cases of hiccough 10 drops or so of turpentine given with 30 drops of spirits of nitrous ether in an aromatic water have a striking effect in putting a stop to a symptom which in a weakly patient is apt to be not only intractable, but exhausting and dangerous. I may say, however, that of all remedies for obstinate hiccough there is none to be compared for a moment in rapid and successful action with an aperient dose of the old-fashioned rhubarb and magnesia. Some years ago I saw in consultation an elderly gentleman, who was suffering from kidney disease and dropsy, with much digestive disturbance. For a whole week previous to my visit, the patient had been worried with a persistent hiccough,

both night and day, which took him every few minutes, and so completely prevented any refreshing sleep that his weakness had begun to be alarming. He had been treated for this symptom with a variety of sedative and antispasmodic remedies, old and new, but the attacks had resisted every effort to suppress them. Finding the tongue excessively foul, and the stomach considerably dilated, I advised a good aperient dose of rhubarb and heavy carbonate of magnesia, made up into a draught with tincture of cardamoms, spirits of chloroform, and peppermint water, to be given without loss of time. This was done, and I heard later that the hiccough had ceased immediately the draught had been taken, and that the patient had eventually made a good recovery—in fact, he lived for some years afterwards. I have used the same treatment in many cases of a similar kind for patients of all ages, and cannot remember a single instance in which it has failed to relieve.

The action of turpentine upon the mucous membranes is utilised in the treatment of hepatic concretions. A dose of 10 or 15 drops, given two or three times a day after food, I have found not only to relieve the catarrh of the bile

ducts, but also to have a solvent action upon the gall-stones—if I am correct in drawing that conclusion from the long period of relief which I have known to follow a course of the remedy. Again, in pyelitis arising from the irritation of retained gravel in the pelvis of the kidney, turpentine given in the same dose is very useful in checking the inflammation, although it has no solvent action upon the concretions. In these doses it is most conveniently prescribed in capsule. In some obstinate forms of chronic cystitis, such as are apt to occur in elderly women, turpentine may often be given with surprising success; indeed, I have found the remedy of greater service in such cases than any other kind of treatment. Two 15-drop capsules may be taken after food several times a day. In some of these cases the Chian turpentine seems to agree better with the stomach. Dr. Tasker Evans informs me that the use of the 4-grain capsules of this turpentine, taken at intervals to the number of nine in the twenty-four hours, he regards as the best and quickest way of bringing this obstinate complaint to a close.

The curative value of turpentine, when given by the mouth, may often be supplemented and

enforced by its internal use in enema. In cases of thread-worms the vermicidal action of the remedy is strikingly manifested, and the oil has also a salutary effect upon the mucous irritation which is a constant accompaniment of ascarides if these be numerous. For a child of seven or eight years of age, ½ oz. of the terebinthinate oil may be used for the injection at bedtime diluted with 10 oz. of barley water. The late Dr. Elliotson used to treat obstinate cases of amenorrhœa in young women with the same injection repeated twice a day, and maintained that its action was attended with almost invariable success. It has been employed, too, in cases of catalepsy. One ounce of the oil, well mixed with a pint of thin gruel and thrown slowly into the bowel, acts as an energetic stimulant to the torpid nervous system; and the injection, if followed by vigorous frictions along the spine with a strong irritating liniment, is said to be attended in such cases with very satisfactory results. In flatulent colic a terebinthinate enema, if given hot, is a welcome addition to the use of remedies by the mouth, and will often bring a severe attack to an immediate close. In the seizures of this kind which have been before referred to as common

in infants, the derangement is a cause of so much suffering that nothing which tends to shorten the attack should be neglected; and the injection of 1 drachm of the oil in 5 or 6 oz. of barley water, used hot and thrown slowly into the bowel, will often put an end to the distress and send the child into a quiet sleep. Employed in this manner, the remedy is a diffusible stimulant of extreme excellence; and in taking stock of the various curative expedients at our command in such a case, to omit it from the list would be voluntarily to abandon one of the most trustworthy of our resources.

CHAPTER III

ON THE USE AND MISUSE OF IRON REMEDIES

In the treatment of anæmia it must often happen to the practitioner to note with vexation the failure of the salts of iron to bring about an improvement. He may try the drug in one shape after another, but only to meet again and again with the same disappointing result. Few remedies in their action more often balk the expectations of the prescriber than the salts of iron, for there are few which demand more accurate judgment as to the cases for which they are appropriate or the point of the illness at which they may best be prescribed. Given at a wrong time, or for a state of things for which they are unsuited, their action cannot fail to be disappointing.

This, of course, is a mere commonplace, and may be said with equal truth of every other

medicine. Every remedy, to be a remedy, must be chosen and timed correctly. If we habitually give the right thing at a wrong time, or a wrong thing at any time, the results of our treatment cannot be satisfactory. We are then likely to lose altogether our faith in physic, and to say in our haste that all drugs are vain. A student is early taught that iron is good for anæmia, and many practitioners seem to hold, almost as an article of faith, that in every such case a preparation of iron ought at once to be prescribed. Often they do not stop to reflect that poverty of blood may be the result of many different causes, and that to seek to remove the consequence while the cause continues in active operation is a proceeding which is tolerably certain to end in failure.

Take the common case of an anæmic child who is thin and pale, with cold feet and a poor appetite, perhaps active enough and fond of his games, but easily tired, restless at night, and often peevish and difficult to please. The child's anæmia at once attracts the eye, and a preparation of iron is ordered as a matter of course—usually one of the commercial syrups. Even if the spoonful of stale syrup which is swallowed with each dose of the medicine does

not upset the patient's stomach and make him sick, the action of the intended remedy too often fails to realize the expectations of the prescriber. The appetite does not improve—perhaps it gets worse than ever; the pallor continues, and the child shows no sign of regaining flesh. In prescribing iron in such a case the practitioner is merely wasting time and ignoring the chief cause of the flagging nutrition. Want of appetite in a child who is not suffering from acute illness commonly means stomach derangement; but until this disturbance has been remedied, iron and the tonics generally are out of place. To take anæmia as a sure guide to the immediate use of an iron preparation is to fall into one of the commonest of errors. To get benefit from such a remedy, especially from the astringent salts which are often prescribed, the tongue must be clean and the digestive organs in a healthy state. Often, therefore, a preliminary course of antacids and stomachics, with careful attention to clothing and diet, must precede any attempt to introduce iron into the system.*

* This important matter is treated at length in the writer's large work, "A Practical Treatise on Disease in Children," 3rd ed., pp. 224 and 609.

A good example of the uselessness of chalybeate remedies, given in the ordinary tonic dose to a patient whose condition prevents her from deriving appreciable benefit from the treatment, is seen in the case of chlorosis in young women. On account of the obvious anæmia this complaint is commonly treated with a preparation of iron, usually the sulphate combined with aloes, as in the aloes and iron pill of the *British Pharmacopœia*. The chief value of this prescription lies in the aloes, for the small dose of iron is probably of little account; but even the aperient, although a step in the right direction, is given in too trifling a quantity to be of appreciable service. A persevering patient will often take this pill for months at a stretch without obvious improvement, for chlorosis in a severe form is not to be put an end to by such inadequate means. Some years ago a physician, now dead, who practised in a large provincial town, was consulted at the hospital by two servant girls who both suffered from pronounced chlorosis. He ordered them the usual aloes and iron pills, and the patients took the prescribed remedies for several months, returning to the hospital regularly for each fresh supply of medicine. Their anæmia, how-

ever, in no way diminished, and at last the girls, disheartened by the want of success of the treatment, ceased to attend. A few weeks later the physician happened to meet his former patients walking in the street, and noticed with surprise that they were ruddy and healthy-looking, having quite recovered their colour and good looks. Full of curiosity, he stopped the girls, and begged an explanation of their altered appearance. The girls, in some confusion and with many apologies, confessed that, growing weary of the ill-success of the legitimate treatment, they had sought the advice of an irregular practitioner—an old woman of the neighbourhood who professed to cure the "green sickness." This old person had given to each of them a packet of twelve powders, with instructions to take one fasting every morning until all were finished. The girls had begun at once to follow the advice, and each had found before she had come to the end of her packet that her chlorosis had completely disappeared. The physician, after a few questions as to the mode of action of this specific, begged for a sample of the remedy, and they very willingly brought him one of the remaining powders on the following day. This, on analysis, proved

to be nothing more than 20 grains of the common commercial sulphate of iron. It appeared that each powder had made the patient violently sick, and that she had brought up a large quantity of tenacious mucus. After a few repetitions of the dose the stomach had been thoroughly cleared of its unwelcome contents, and had then resumed its healthy functions, which previously had been almost at a standstill. That it is purely the emetic action of the iron which is the curative agent in these cases I have often proved to my own satisfaction by adopting the old dame's treatment, but using the sulphate of zinc in 20-grain doses instead of the iron sulphate. The effect was always satisfactory, for 6 or 8 doses taken fasting on successive mornings never failed to bring the complaint to a favourable end. This method may not be the most pleasant way of effecting a cure of chlorosis, but I am sure it is a certain and a quick one.

The main point in the treatment of this derangement consists in relieving the stomach of the tenacious secretion which clings to its lining membrane, and must not only seriously impede the admixture of the gastric juice with food swallowed, but must also hamper the action

of the absorbent vessels. Its removal may also be effected by irrigation of the stomach with a normal saline solution used hot; but a less unpleasant way of reaching the same end is to prescribe frequent doses of salts and senna—the compound senna mixture of the *British Pharmacopœia* taken three times a day before food. The magnesium sulphate in this prescription dislodges and liquefies the collected mucus, and the senna, which has an aperient action, especially upon the upper part of the bowel, hastens the escape of the mucus from the system.

In this complaint, then, as in that previously referred to, the anæmic state of the patient is no true guide to the use of iron. This remedy can only act with advantage when the digestive organs are in a healthy condition, for a clean tongue is essential to the beneficial employment of the stronger chalybeates. There is, however, an exception to this rule which should be mentioned. In cases of general weakness, such as is found during convalescence from acute illness, or in cases of severe indigestion when the derangement has subsided, leaving much loss of tone and flabbiness of mucous membrane, the tongue is pale, with a thin coating of silvery fur,

and is indented at the edges by the teeth. Such a tongue is seen in cases—rarer now than they used to be—where a mother has kept her infant at the breast although her strength has become unequal to the task of nursing it. In this condition the acid preparations of iron are especially indicated, given at first in small doses and gradually increased in strength.

In ordering a chalybeate the choice of the preparation can never be a matter of indifference, for besides that patients vary greatly in their ability to tolerate these remedies, a stomach rendered irritable by recent derangement is often found to bear ill a form of iron which at another time it would dispose of without difficulty. Under ordinary conditions of debility, unless the tongue is quite clean, it is best to begin with the ammonio-citrate of iron in an infusion of calumba, changing when the tongue is clean to one of the stronger preparations. In the treatment of anæmia in the child, after the state of the digestion has been attended to, the ammonio-citrate is also useful. It is especially to be preferred in cases of lingering gastric catarrh, after alkalis have ceased to do good and the stomach is as yet unable to profit

by an acid tonic. In fact, this salt and the tartrate are the only preparations of iron which can be given in such a condition with any prospect of benefiting the patient. Two or three grains may be prescribed with five of potassium citrate and a few drops of sal volatile in a spoonful of freshly made infusion of calumba. It should be sweetened with glycerine, which is much more wholesome than stale syrup. The ammonio-citrate makes a perfectly clear solution with sodium salicylate. It therefore forms a useful addition to the prescription in cases of subacute rheumatism in the child when the articular pains are slow to subside, or recur again and again when the salicylate is discontinued. Rickets and splenic anæmia show improvement most quickly with the acid preparations, especially the perchloride or sulphate of iron. These forms should also be chosen when this remedy is required in cases of hæmorrhagic purpura. To strumous children who suffer from tubercular disease of bone, or chronic enlargement of glands, the iodide of iron has long been held to be especially suited; but in my experience incomparably the best preparation for these cases is a mixture of the tincture of the perchloride of iron (5 to 10 drops) with

the *Pharmacopœia* solution of the perchloride of mercury (10 to 20 drops) taken perseveringly three times a day for a period of months. Cases of mucous disease do not benefit, as a rule, by the stronger preparations. For them the best form is the tartrate or the ammonio-citrate given with an alkali in a bitter infusion. In cold weather one or two drachms of the decoction of aloes may be substituted for the alkali with advantage, but this becomes irritating in the summer and should be omitted. Dialyzed iron and hæmatogen are favourite remedies with some practitioners, and as a rule unirritating to the stomach, although I have known the latter to excite vomiting in certain cases. Still, even an unirritating preparation of iron, although it may set up no obvious disturbance, is not likely to be a source of benefit to the patient as long as the digestive processes continue to be in an unsatisfactory state.

The strong preparations of iron are best taken immediately after a meal. The tartrate and ammonio-citrate, especially when given with an alkali, have always seemed to me to act best taken about an hour before food. The medium in which the dose of iron is prescribed is not a

matter to be neglected. The bitter infusions—and of these the infusion of calumba is to be preferred—are commonly used, and not only agree well, but no doubt add to the value of the remedy. It is important, however, to insist that the infusion be freshly made, for the concentrated infusions diluted with water to the required strength, which are often made to do duty for the fresh preparations, are not desirable additions to the mixture. Moreover, they are frequently stale, and on that account not unlikely to upset the stomach. If this happens the blame is at once referred to the metallic salt, and the patient is said to be "unable to digest iron." In every case of such assumed incapacity it is well to dispense with the bitter, and order the perchloride drops to be taken well diluted with one of the aerated waters. The kind of water to be used is immaterial, for it is the gaseous constituent of the medium which gives its value to this method of administration. The aerated fluid not only renders the draught more agreeable to the patient, and less unwelcome to the stomach, but seems to invest it with the qualities of a natural ferruginous water so as very appreciably to enhance the efficacy of the remedy. In using this or any of the stronger

preparations of iron it is important to insist upon thorough dilution. For an adult the dose should be taken in a full claret glass of soda or seltzer water three times a day immediately after food.

In addition to their tonic influence upon the system generally, certain of the chalybeate salts have special uses in their action upon particular organs. Thus, the pernitrate in small doses (m j to m ij of the solution) is of value as a safe and efficient remedy for children in cases of convalescence from prolonged chronic diarrhœa. This ferric nitrate, indeed, seems to have a special invigorating effect upon all the mucous membranes, giving tone to relaxed tissue and reducing secretion. It has been used successfully for this purpose in cases of chronic bronchitis, menorrhagia, and leucorrhœa. For an adult the dose is 10 to 15 minims. It must be well diluted, preferably with one of the aerated waters.

The perchloride has a diuretic action which is taken advantage of in the treatment of albuminuria. It is especially useful towards the end of an attack of acute Bright's disease, when the albumen is slow to disappear from the urine. I prefer the form devised by the

late Dr. Basham in which the perchloride drops are given with the acetate of ammonia, and a few drops of dilute acetic acid are added to prevent precipitation of the iron by the alkali. For an adult 20 minims of the perchloride tincture should be added to 1 fluid drachm of the liq. ammoniæ acetatis and 10 drops of dilute acetic acid. This can be taken in 1 oz. of water three times a day after food, but I think the value of the draught is increased by a further dilution with double the quantity of an aerated water.

There is a special action of the perchloride which may be mentioned. In cases of erysipelas this preparation used to be regarded as a specific, and very exaggerated estimates of its value have been recorded. For an adult the dose recommended is 15 drops to be taken every two hours, beginning after the action of a brisk aperient. This treatment is no doubt useful in certain cases, but I have not found its beneficial effect to be "immediate and invariable," as was claimed for it by an ardent advocate; indeed, in cases of infantile erysipelas, for which this observer especially recommended it, the perchloride in the prescribed dose of 2 or 3 minims every two hours

has appeared to me to be absolutely useless. It is, however, only right to say that I have been told that my want of success has been due entirely to timidity in prescribing, as, to produce an effect, it is necessary to push the remedy boldly in large and repeated doses. As yet I have had no opportunity of following this counsel, for erysipelas has happily become a much less common complaint in these days of antiseptics and aseptic surgery.

The sulphate of iron is a strong tonic, and in combination with sulphate of magnesia forms one of the stock mixtures in all hospital pharmacopœias. In this form it is useful in pure anæmias when there is no digestive derangement. I have used the exsiccated sulphate largely in cases of children left weakly and anæmic after acute illness, and have found it well borne in fairly large doses—2, 3, and 5 grains. They take it well in glycerine directly after a meal. In ordering iron it is the usual practice to combine the drug with a sufficient quantity of aperient. The object of the addition is to counteract any possible constipating effect of the astringent salt; but I think it is advisable to push the action of the aperient farther than this, for there can be no doubt

that judicious purgation enhances the value of the remedy. It is also beneficial in preventing retention of the iron and colicky pains. It is wise in all cases during a course of iron to order a liberal dose of any saline aperient to be taken twice a week before breakfast. If this practice be followed, it will not be necessary to discontinue the use of the iron for some days every few weeks as used to be recommended.

The chalybeate salts, when given with judgment, are remedies which we could ill spare, but their haphazard and indiscriminate use is strongly to be deprecated. Iron must not be regarded as an infallible specific in every form of anæmia. The cases for which it is curative must be chosen with judgment, and every care must be taken to see that the digestion is in a condition to profit by the remedy. Any sign of irritability of stomach is to be taken as an indication that the stronger preparations are to be avoided, and that even the milder salts—the tartrate and the ammonio-citrate—should be prescribed timidly and only in combination with an alkali, such as citrate of potash or the aromatic spirits of ammonia, in a freshly made bitter infusion. If the tongue

be clean, or merely flabby and pale, showing indentations of the teeth at the sides, the stronger salts may be prescribed with confidence, and the dose may often be pushed with advantage if aperients are given from time to time as already recommended.

CHAPTER IV

ON THE USE OF ALKALIS IN PRACTICAL MEDICINE

Of the stock medicines in common use none are prescribed with greater frequency than the alkalis. As remedies for all kinds of dyspeptic troubles, for gout and rheumatism in their many manifestations, for urinary acidity and sandy deposits, and in the child for all forms of catarrhal derangements, we turn at once confidently to the alkaline salts. But valuable as these medicines can be in the treatment of disease, they must be used with discretion, for, like other drugs, they are only of service when prescribed for appropriate conditions and on a definite plan. There are plain limits which it is important to recognize, within which alone their operation can be expected to be useful, and outside of which their influence is calculated to be rather harmful than a source of benefit.

When taken before meals alkalis have first a local action. They neutralize to some extent the acidity of the gastric and intestinal contents, but are most to be valued for their curative influence upon catarrhal conditions of the mucous membrane. To be serviceable they must be prescribed only in moderate doses, and discontinued as soon as their administration has ceased to be obviously beneficial. In excessive quantity the effect of the remedy upon an empty stomach is to increase the secretion of acid. The stomach at once sets to work to neutralize the alkali, and if called upon day after day to make a similar effort, cannot but feel the continued strain injuriously, so that the weakness of an already enfeebled organ is increased. If the dose be pushed still farther so as to overcome in a great measure the acidity of the gastric secretion, the consequent loss of digestive energy must aggravate the derangement and add to the discomfort which the remedy was intended to allay. When absorbed into the circulation the salts increase the alkalinity of the blood, modify its secretions, and if continued too long become a fruitful source of anæmia and languor. Carried out through

the kidneys alkalis reduce or annul the acidity of the urine and are at first beneficial, but in immoderate dose or a too protracted course may give rise to cystitis or even vesical hæmorrhage. In some exceptionally susceptible patients an alkali taken several times a day, even in ordinary dose, is capable of producing very undesirable consequences. A girl of ten, lately a patient in a London hospital, was found to suffer from cystitis whenever she began a course of potassium citrate. In this child a dose of ten grains taken three times a day invariably caused the urine to become opalescent in a few hours and turbid and offensive before the end of the week. Fortunately such susceptibility is not common. It must, however, always be remembered when prescribing alkalis with the object of influencing the renal secretion, that we may reduce the acidity of the urine without necessarily modifying the faulty condition of the system upon which the excess of acid depends.

Alkalis have a local action both upon the stomach and bowels. In catarrh of the stomach their influence for good is very decided; but this appears to be due not so much to their chemical action upon the gastric contents as to

their undoubted influence in restoring the deranged mucous membrane to a normal condition. In certain morbid states of the stomach the secretion of the gastric juice is exaggerated. This may be the consequence of mild irritation of the gastric mucous membrane, or of mental emotion, or a too sedentary occupation combined with insufficient exercise. The patients suffer greatly from weight or discomfort at the epigastrium, and complain of sour eructations and often of vomiting. The power of alkalis to neutralize in any material degree this excessive secretion has been called in question by many notable observers—Trousseau amongst others—and the relief which these remedies undoubtedly bring is due, probably, to their local action upon the walls of the stomach. The effect of the alkalis is not, however, limited to this local action, for when used with judgment they seem to have the power of influencing the whole system for good and setting up a favourable change which is not always a merely transitory improvement. We often have occasion to notice the prolonged benefit which follows a course of alkaline waters at one of the many spas both at home and abroad. Acting in this manner the salts of the alkalis

are not so much antacids as alteratives—that is, drugs which given in modest dose for a period of weeks or months are able, without producing any immediate or striking change, to correct a morbid condition of an organ or of the whole system, and set up an improvement which, if not permanent, is slow to pass away. But it must be kept in mind that to achieve this result the dose of the alkali must be studiously moderate. It is judicious, when using it thus for its more distant effects, whether upon the urine or elsewhere, to employ the citrate or acetate, for these salts, not being alkaline until they undergo a chemical change in the blood, do not tax the gastric energies or call upon that organ for an increased effort to which at the time it may be unequal. Still, even with these remedies we must be careful to use them with judgment. Directly they begin to produce signs of anæmia, or earlier if possible, their use should be abandoned. We do no good in chronic ailments by impoverishing the blood, and whenever we prescribe drugs which may have any such effect it is essential to keep a careful eye upon the patient to see that the limits of safety are not overstepped.

In gastric derangements the bicarbonates of

soda and potash are favourite remedies and are probably equally efficacious. They should be given in moderate quantities—10 to 20 grains are usually sufficient (for children 5 grains to 10), and it is well, as it adds to their curative value, to combine in each dose a few grains of sodium chloride. I have also found that the tincture of colchicum seeds in very small doses (2 or 3 minims) is a useful stomachic which in cases of dyspepsia forms an addition to the draught of no little importance. When an alkali is thus prescribed purely for its local action upon the stomach, it should be taken before food, and it is advisable, at any rate after the first few days, to make up the mixture with a freshly made bitter infusion instead of with water. If, however, the object of our prescription is merely to correct acidity, it should be taken two hours after food, and the bitter is best omitted, as its presence in the draught was held by Dr. Prout materially to reduce the neutralizing properties of the alkali.

If there be great irritability of the stomach, the alkaline draught should be made effervescing with citric acid added at the time of administration, and in such a case the inclusion in the prescription of a minute quantity

of antimonial wine increases the sedative effect of the remedy. Thus, 20 grains of sodium bicarbonate with 5 of sodium chloride and one drop of antimonial wine in a bitter infusion may be made effervescent with 16 grains of citric acid. It is best to use a quantity of acid insufficient to neutralize the soda completely so as to leave the draught slightly alkaline. It should be taken three times a day or oftener before food.

The caustic alkalis—the liquor potassæ and liquor sodæ—have a more decided sedative action upon the stomach than the bicarbonates; and the liquor potassæ given in 10 or 15-drop doses, with a few grains of potassium nitrate in a bitter infusion, is a remedy of very definite value. The liquor potassæ acts well also in combination with other stomachics. In cases of continued dyspepsia with obstinate constipation, sleeplessness, and abdominal pains, I have often found speedy relief and prolonged improvement to follow a draught containing 20 drops of liquor potassæ with 1 oz. each of freshly made infusion of rhubarb and compound infusion of gentian, taken regularly for a week or longer every morning before breakfast. Long courses of alkalis are rarely of service in the management of ordinary flatulent

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dyspepsia, for although very useful in the early stages, there always comes a time when their continued administration ceases to be beneficial. As has been said, their chief value consists in their power of reducing an acute or sub-acute catarrh of mucous membrane. When this has been done, and the gastric lining is left flabby and relaxed, a different kind of medication is required. In the treatment of dyspepsia alkalis rarely do good if the urine is habitually alkaline or neutral or only very slightly acid: also when the tongue is of good colour and clean, or pale and flabby with marks at the sides indented by the teeth, these remedies cease at once to be appropriate. The soda salts can be borne for a longer time than the corresponding salts of potash, for the latter are apt to have a depressing effect upon the heart, and may have to be discontinued for that reason. The same disadvantage is shared by all the potash salts, and whenever full doses of the chlorate have to be continued day after day, as in the treatment of ulcerative stomatitis in the child, sodium chlorate, which can be given in large doses without risk, should always be made use of.

In addition to the salts of potash and soda, the heavy carbonate of magnesia and the car-

bonate of lime are very useful. The former combined with powdered rhubarb is a familiar remedy in every well-ordered nursery, and is invaluable as a preliminary step in the treatment of stomach derangement in the child. For a mild diarrhœa it is better to combine the rhubarb with a few grains of aromatic chalk; for the latter, while in no way interfering with the aperient properties of the rhubarb, heightens its astringent effects. It may be remarked that a teaspoonful of treacle in the draught effectually disguises the nauseous taste of the remedy, and deprives it of its only disadvantage. For infants the dose may be mixed up into a stiff paste with 2 or 3 drops of the same sweetener, and smeared by the nurse's finger at the back of the child's tongue. Given in this way the remedy is not unwelcome to the patient, and runs little risk of being expectorated.

When our object is to neutralize acid in the cæcum, the insoluble alkalis are to be made use of, for these are more likely to pass unaltered through the stomach and reach the lower bowel unchanged. The pains often complained of in the lower part of the bowel, caused by local distention with gas temporarily locked up by spasmodic contraction of the

intestine, usually yield quickly to the insoluble magnesian salt. The remedy should be combined with a small dose of codein ($\frac{1}{8}$ to $\frac{1}{4}$ grain) in a draught made stimulating with compound spirits of ammonia and aromatics. In aperient doses these salts produce more irritation of the bowels than is caused by the soluble sulphates of soda and magnesia, and this effect is found to increase by repetition. Trousseau long ago pointed out that when given on successive days the sulphates each time produced less and less effect, while in the case of the insoluble salts the aperient action was more and more marked with each fresh dose of the medicine, and soon led to the passage of mucus, often blood-stained and evacuated with painful straining.

In addition to their value in derangements of digestion, alkalis are of special service in the treatment of urinary acidity and the discharge of sand and gravel. It may be the fact, as has been inferred from experiments, that heightening the alkalescence of the blood does not augment its power of delaying or preventing the formation of gouty deposits, but there is no doubt that increasing the alkalescence of urine has a decided effect in preventing the deposition of uric acid from that secretion

into the kidney and bladder. As Sir William Roberts has remarked, "it is chemically impossible for uric acid to be deposited from an alkaline urine," and it is a matter of common observation that a course of alkaline waters, such as that of Vichy, prevents the deposition of sand as long as its use is continued, and, in spite of experimental evidence I may add, seems to exercise a restraining influence upon acid formation for a considerable time afterwards. In an alkaline or weakly acid urine the uric acid is converted into a urate, and remains in solution at the temperature of the body. By such means it seems possible—although this has been denied—that small renal calculi may be reduced in size sufficiently to pass through the ureters and be discharged. To effect such a result, however, a long course of the remedy is required. As already stated, the neutral salts should be used for this purpose, especially the citrate of potash, for these salts may be taken in moderate dose for a long time without disadvantage. A favourite remedy for this condition in gouty persons is the carbonate or citrate of lithia; but this salt must be used with caution. Lithia is an alkali which is capable of exercising a poisonous action if

given in large doses, and cannot, therefore, be used as an alkalizer of blood or lymph, as the dose required for such a purpose might have dangerous consequences. It is said also to form an insoluble compound with the triple phosphate of soda and ammonia; and its solvent action upon uric acid, at any rate in the living organism, has been called in question.

The citrate of soda is utilized in the feeding of infants. One of the difficulties met with in fitting an infant with a satisfactory diet is the firm clot formed by the casein of cow's milk in the infant's stomach. This density of clot is explained by Sir A. Wright to be due to a combination of the caseinogen of the milk with calcium salts, and he has recommended the use of the soda citrate to replace the calcium in the combination, for the clot thus formed is comparatively loose and easy of digestion. Alkalizing the milk with carbonate of soda is an old practice, but it had this disadvantage, that the calcium when displaced was thrown down and lost to the system. By using the citrate of soda the alkali still joins with the caseinogen, displacing the calcium, while the citric acid unites with the latter base, forming a soluble salt which is absorbed

into the circulation. The proportion recommended for ordinary use is 1 or 2 grains of the citrate to each ounce of the milk.

The bicarbonate of soda is an alkali which is often taken for a lengthened period in cases of dyspepsia. In a long course of this remedy each dose should be combined with a few grains of sodium chloride, for the latter salt has the property not only of aiding metabolism, but also of increasing the vitality and power of resistance of the red corpuscles. It also counteracts the tendency of the bicarbonate to form uric acid concretions. But still, even with this safeguard, the protracted use of the carbonated salt is not to be recommended, for such a course must tend to weaken the digestive energy, and lead before long to anæmia and depression. It may, however, sometimes be considered advisable in cases of severe acid dyspepsia to give large doses of bicarbonate of soda for short periods of time on account of the beneficial immediate effects of the remedy. When there is great acidity of stomach towards the end of digestion from acid fermentation of food, 30 or 40 grains, or more, given in one dose about three hours after a meal, will often quickly allay the more

distressing symptoms, especially if the draught be made stimulating with compound spirits of ammonia and aromatics. The painful cramps in the limbs which often afflict the habitual dyspeptic, especially in the night, may be put a stop to by the same remedy taken at bed-time. Much larger doses than these have been recommended by some, and I myself have heard the late Dr. Piorry at the Charité Hospital, in Paris, recommend 3 to 10 grams (48 to 160 grains) to be taken three or four times a day in cases of pyrosis. Such inordinate dosage, however, is quite unnecessary, for this unpleasant symptom is rarely found to resist the action of a few grains (5 to 10) of the compound Kino powder given several times a day, as recommended by Sir Thomas Watson. Since the introduction of the salicylate the bicarbonate of soda is now little used alone in the treatment of rheumatism. The two salts are, however, sometimes given together. When the salicylate of soda is prescribed in large doses for the treatment of chorea, the addition of double the quantity of the bicarbonate of soda has been recommended by Dr. D. B. Lees for the purpose of counteracting any untoward effects of the

salt, such as the dyspnœa which sometimes follows excessive doses of the drug. My objection to this practice is that it intensifies the subsequent anæmia. Rheumatism is itself an active cause of impoverishment of the blood, especially in early life, and an alkali given frequently in large doses also contributes materially to the same undesirable end. To me, therefore, it appears undesirable to add to the lowering effect of the complaint upon the blood by the free use of a remedy which has itself a similar depressing action.

In suppression of urine the bicarbonate of soda given in 40 or 50-grain doses every four hours will sometimes quickly promote a return of the secretion, especially if the remedy be combined with a drachm of the spirits of nitrous ether; but the suppression of urine which is apt to occur towards the end of an attack of typhoid fever or scarlatina is most rapidly brought to an end by a copious enema of hot water (100° F.), which the patient should be directed to retain as long as possible.

The alkaline preparations are also useful in cases of acute bronchitis when secretion is viscid and thick and difficult to expel, for the salts of soda and potash have great

influence in increasing the fluidity of the mucus and favouring expectoration. The bicarbonate of soda is commonly made use of for this purpose, but it is inferior in value to the liq. potassæ, which should always be preferred. In cases of acute bronchitis with fever, dyspnœa, and failing acidity of urine, Dr. A. Haigh recommends bicarbonate of soda to be given in sufficient doses to make the urine alkaline, and states that when this is done the temperature falls and all the symptoms are quickly relieved. The quantity required is, however, large—20 to 60 grains for a child and 90 to 120 for an adult in the twenty-four hours. The remedy must not be given with ammonia, which lessens its neutralizing power, but may be combined with digitalis as a cardiac tonic.

I will not here refer to the action of those special salts of the alkalis—the bromides of sodium, potassium, and ammonium, the lactate, sulphite, and hypophosphite of calcium, and other similar combinations whose influence depends not so much upon the base as upon the element with which the base is incorporated —the union creating a new body with very definite therapeutical endowments. These are

ordered not for their general action as alkalis, but for their specific influence as remedies for the relief of particular complaints. I may, however, refer in conclusion to another use for the bicarbonate of soda which should not be passed over without due recognition. Just as this salt is beneficial in catarrhal conditions of mucous membrane for its local action, so it is found to have a healing influence when applied to sores and inflamed surfaces of the body as an external application. Alkaline baths are used largely in skin diseases for the relief of irritation; 2 to 10 oz. of the bicarbonate of soda dissolved in an ordinary warm bath has a welcome soothing effect in cases of eczema, psoriasis, urticaria, lichen, and prurigo. The value of the salt as a local application, however, is best seen in the case of ulcerated surfaces and phlegmonous inflammations. A solution of 20 grains to the ounce of water kept applied to an intractable ulcer will be found to exercise a surprising influence in promoting the healing of the sore. I have seen large superficial ulcers which had resisted all previous measures begin at once to heal under the use of this simple dressing.

In whitlow, after the escape of the pus by

incision or otherwise, the bicarbonate of soda solution applied on lint under oiled silk causes the pain and suppuration to disappear with remarkable quickness. It is unnecessary to increase the strength of the solution, for the value of the application does not depend upon any antiseptic action of the salt; indeed, its activity is far greater than that of iodoform or other antiseptic. It is thought that the effect is due to its local influence in raising the alkalinity of the blood, which has been found by Brucker and others to be greatly reduced in cases of febrile reaction set up by bacterial intoxications. The same treatment is equally useful in cases of burns, scalds, otorrhœa, leucorrhœa, etc., and the value of the solution as a douche to the pharynx in cases of tonsillitis and septic inflammations is recognized by every one. There is one other use for the bicarbonate which should not be omitted. The aching which often comes on suddenly in a decayed tooth from direct irritation of the dental nerve by acid secretions in the mouth can be quickly relieved by washing out the mouth with the solution. The alkali neutralizes the acid and at once puts a stop to the pain.

CHAPTER V

ON ANTISPASMODICS AND THE CURE OF SPASM

FOR the relief of spasm and the many distressing sensations which may be grouped under that head many kinds of treatment may be adopted. In the case of general convulsions and some forms of local spasmodic contraction we may act upon the nervous system generally, and make use of means which reduce its sensitiveness to morbid impressions. For this purpose we turn to the narcotics—opium, chloral, belladonna, the bromides, etc. But these remedies should never be used indiscriminately or without due consideration of the nature of the attack and the presence of a removable cause. They may form the main treatment of the case, or may be employed with the object of reducing general nervous excitement while special means are being used for the relief of local distress.

In certain forms of local spasm we may make

use of remedies which are known to have a special sedative action upon the disturbed part, such as grindelia in spasm of the respiratory tract; belladonna, chloretone, and codein in intestinal cramps; valerian and assafœtida in the mysterious functional derangements which are massed together under the head of "hysteria."

Again, we may seek to produce a tonic effect upon the system as a whole by the use of strychnia and nux vomica, ergot of rye, sulphate and valerianate of zinc, quinine, arsenic, the stronger preparations of iron, and drugs of similar action. These, however, are of little value during an actual paroxysm, but exert their influence gradually by reducing the general nervous irritability, so that the system becomes less intolerant of morbid stimuli, and ceases to respond with such petulant activity to disturbing influences. Their action in this respect is deliberate, and rarely of more than passing value, unless persevered with for weeks or even months at a stretch.

The above may be said to include the special classes of drugs which are generally understood by the term "antispasmodic"; but they do not embrace the whole subject of the cure of spasm. The best and only satisfactory kind of antispas-

modic treatment is that which strikes at the root of the evil and suppresses the irritant to which the disturbance is due. In many persons, and especially in children and young women, the source of the ill is often a deranged condition of the digestive organs, and when this is remedied the spasm ceases. General and partial convulsions, tetany, and many kinds of tonic and clonic spasm, both general and local, may be induced directly by peripheral, and especially by gastro-intestinal irritation. Children, with their immature and impressionable nervous systems, are curiously amenable to these influences, and in some of them any form of irritation seated at any part of the body may be capable by reflex mechanism of setting up automatic and irresistible contraction in voluntary or involuntary muscles. The tendency to such morbid response to stimuli is greatly enhanced by an impaired state of the general health. In the case of tetany, for example, the disorder rarely attacks a healthy, sturdy subject, but is met with almost invariably in children whose nutrition is temporarily at fault, either from natural delicacy or domestic mismanagement. An attempt has lately been made to associate the symptoms of tetany with deficient action of the parathyroid

glands. The secretion from these glands, it is suggested, is designed to regulate the proper balance of the motor nerve function; and it is stated that in some fatal cases of tetany in the child hæmorrhages have been discovered in these glands. Were this theory correct it might be expected that the administration of a preparation of animal parathyroid would be followed by signs of improvement, but in the case of children at any rate no visible benefit has resulted from this method of treatment. The generally accepted explanation of the nervous symptom is that the spasmodic contractions of the complaint are due to toxic absorption from the alimentary canal of a poison which shows a special preference for the motor fibres and ganglion cells of the anterior horn of the spinal cord. But even this is hardly an adequate explanation of the mechanism of tetany. Autointoxication in young subjects is a common occurrence, and its consequences are familiar to all, while tetany is comparatively rare. It is possible, however, that absorption from the bowel may take a part in the production of the nervous complication. The toxin may conceivably heighten the sensitiveness of the nervous system to peripheral

impressions, while the actual attack may be due, as in the convulsions of rickets, to a distant local irritation, and occur as the direct result of reflex mechanism.

Whatever be the correct explanation of the phenomena of tetany, clinical experience shows that speedy improvement follows rapidly upon arrest of the digestive derangement which, if not the cause of the nervous symptoms, is invariably associated with them. We clear away fermenting food from the bowels by a full dose of rhubarb and soda, arrest excessive intestinal secretion by alkalis and aromatics, and by a careful diet in which a judicious restriction of milk and other fermentable elements in the food takes a foremost place, seek to restrain the formation of toxins in the alimentary canal. These measures may have to be reinforced afterwards by tonic treatment and the use of the accepted antispasmodics in order to invigorate the nervous system and allay its irritability; but these remedies have little value at the beginning of the treatment, and begin to be useful only when the disturbed digestive functions have been attended to and brought into a healthy state.

But it is not only tetany which is closely associated with gastro-intestinal disturbance and presumably results from it. In neurotic subjects —especially in neurotic children—general convulsions and even modified muscular contractions, which bear a close resemblance to those which are characteristic of the so-called *petit mal*, may be induced by irritation arising from this source. It is far from uncommon to find the instability of the nervous system, which may be called a normal state in the infant, persisting in growing boys and girls to the age of 10 or 12 years. As a consequence confused and purposeless muscular contractions and convulsive movements, such as are familiar enough in the rickety infant, may be met with at an age which suggests a graver view of the attacks than a truer conception of their real nature would be able to support. These cases are often called "epilepsy" and even treated as such with long courses of bromides. It is not for the first time that I venture to protest against the practice of tacking together all cases of convulsions in the growing child under this one misleading designation. I maintain that so long as the seizures occur only in the course of a digestive disturbance, or

are accompanied by a rise of temperature, or happen in a child who is suffering from any form of peripheral irritation, or, indeed, in one who is not to all appearance in his normal state of health, we are entitled, whatever may be the age of the child, to indulge a hope that the seizures will cease when the cause has been removed and adequate measures have been taken to prevent its return. The term "epilepsy" cannot be fitly applied to such avoidable attacks as these, but should be confined to cases where the patient seems to be well, with nerves normally at rest and no sign discernible to lead to the suspicion of the onset of any such untoward visitation.

There are other forms of functional nervous derangements which may arise from digestive trouble and acid fermentation in the bowels. The fantastic muscular twitchings which go by the name of "tics" and "habit spasms" usually owe their origin to this cause. These movements, by their persistency, occasion much distress to parents, and are often the despair of the medical attendant, especially if he follow the prevailing method of attempting to control them by the use of nerve tonics and antispasmodics. Under such treatment they are,

no doubt, intractable enough; but if the spasms are accepted as a significant sign of intestinal disorder, and treated by proper measures for its relief, no special difficulty is found in keeping them in check. Antacid and stomachic remedies, combined with a rigid diet from which sweets and fruit are carefully excluded, and starch allowed only in the form of bread and toast, soon give rise to a surprising change. Not only do the movements cease, but the general nervous unrest disappears, and there is a welcome return to a normal state of physical and mental tranquillity which a recurrence of the morbid stimulus is no longer able to disturb. Early treatment on these lines is, however, of great importance, for if the movements have been allowed to continue for months unchecked until the habit has become confirmed, more difficulty is found in bringing them to an end. Still, even in these cases, diet and administration of arsenic in good doses, combined with alkalis in a bitter infusion, will often produce very encouraging results, especially if the patient can be induced by hopes of reward to bring his own power of self-control to our help. Punishments are useless.

Head-shaking, again, and rhythmical rotatory

movements of the head combined with nystagmus (the spasmus nutans of infancy) are also commonly due to digestive troubles in a neurotic subject. The milder attacks often yield readily to a dose or two of rhubarb and magnesia, especially if at the same time the quantity of fermentable food in the diet is restricted. But in the severer forms of the complaint special tonic treatment will always be required in addition. When the digestive functions are working satisfactorily iron should be given, and if the child be over twelve months old a meal of pounded mutton or chicken should be included in his dietary. Spasmus nutans is, of course, a different thing from the nodding convulsion (eclampsia nutans). The latter is only seen in epileptic idiots, and is incurable.

Although it is the digestive tract which is most frequently at fault in cases of reflex spasm, it is not the only source from which the evil influence may spring. Any irritant, wherever situated, even a mild one if sufficiently prolonged or often renewed, may lead in a suitable subject to some such morbid response. A common example of this is seen in the nervous commotion which is excited in some

children by post-nasal irritation due to adenoid vegetations. The growths themselves are probably concerned in the disturbance only indirectly. Alone they excite little irritation unless very numerous, but by their presence they render the naso-pharyngeal mucous membrane morbidly susceptible, so that it readily becomes the seat of a troublesome catarrh which exerts a curiously teasing influence upon the nervous system. General convulsions sometimes, and laryngeal spasm commonly, owe their origin to this source of worry. The more I see of laryngeal spasm, either in the form of laryngismus stridulus or stridulous laryngitis, the more convinced I become that in these cases the source of the irritation is the naso-pharynx. To me, catarrhal croup at once suggests adenoids, and I find it to be most readily cured by treatment of the post-nasal catarrh. The same thing may be said of simple laryngeal spasm without catarrh (laryngismus stridulus). Children who are attacked by these dangerous seizures are almost always sufferers from adenoid vegetations and post-nasal irritation. They are also often the subjects of rickets, but this is not always the case. It is a mistake to assume, as is commonly

done by writers upon this subject, that laryngismus is a complication peculiar to the rickety state. No doubt in that phase of malnutrition there is a special irritability of the nervous system which so heightens its response to disturbing influences that the morbid rejoinder can be provoked by a comparatively moderate impression. But the occurrence or not of spasm depends less upon the constitutional state of the child than upon the nature and strength of the irritant. If the provocation be adequate, spasm may be induced in a neurotic subject at any period of infancy and childhood in rickety and non-rickety subjects alike. Repeated observation has convinced me that morbid contraction of the laryngeal muscles occurs almost solely amongst the sufferers from adenoids, and is to be ascribed directly to naso-pharyngeal irritation. Some months ago I recorded several cases of laryngismus affecting new-born infants, in whom the frequent spasms involved the gullet as well as the larynx, so that swallowing became almost impossible. All these infants were suffering from adenoid overgrowth and severe catarrhal obstruction of the nasal passages ; and it was interesting to note that the force and frequency of the attacks

varied in exact proportion to the greater or less intensity of the naso-pharyngeal distress. In cases such as these, then, as in tetany, the true antispasmodic treatment consists in measures which allay the local uneasiness and put a stop to the nervous commotion by removing the cause which has brought it about.

These measures consist in applying remedies locally to the naso-pharyngeal mucous membrane. This is done most easily in young children by dropping medicated fluids into the nostrils and allowing them to trickle down into the pharynx. One of the best of these is resorcin dissolved in normal saline solution (2 to 5 grains to the ounce). Of this a few drops may be instilled into the nostrils several times a day as the child lies on his back. If the spasms are violent and repeated, the local treatment must be reinforced by the internal use of special antispasmodics. In the case of the larynx the best of these, beyond all comparison, is the liquid extract of grindelia—a drug which has a very decided sedative action upon spasm of all muscles connected with the respiratory apparatus. It may be given in doses of 10 to 30 drops in water well flavoured with syrup of orange peel, every four hours. In the case of

young patients, grindelia is an antispasmodic of the utmost value. In asthma, in whooping-cough towards the end of the spasmodic stage, and indeed in all varieties of respiratory spasm, we may turn to grindelia with full confidence in its beneficial effect.

Another instance of reflex spasm is seen in the rigidity of the muscles of the neck which not seldom occurs in cases of acute otitis. The child lies in a state of seeming stupor, but is not entirely unconscious. He holds his head stiffly and slightly retracted, but shows no sign of pain as long as he is left alone. If, however, his head is moved, especially if an attempt be made to bend it forward, he shows every sign of distress. The stiffness ceases at once and all the symptoms improve when the purulent contents of the tympanum are allowed to escape by puncture or rupture of the membrane.

The above are the most prominent and persistent varieties of reflex spasm, the only rational treatment of which consists in measures which produce a direct impression upon the source of the nervous trouble. Other minor examples of spasmodic muscular contraction of similar mechanism are met with in daily practice. The severe nocturnal cramps in the

limbs which are a common subject of complaint by the habitual dyspeptic are due to acidity, and can be put a stop to by an alkaline draught taken at bedtime. Acid collections in the cæcum and the small intestine near by may set up cramp in the bowel by causing spasmodic contraction of its muscular coat and so penning up flatus and preventing it passing away. The painful distension which is apt to ensue can be satisfactorily relieved by the administration of the insoluble alkalis, such as the heavy carbonate of magnesia, combined with $\frac{1}{4}$ or $\frac{1}{3}$ grain of codein given several times in the day. Codein is a valuable sedative in all forms of abdominal pain, and has the advantage over opium of interfering little with the action of the bowels. Under certain conditions, however, belladonna is to be preferred. Spasmodic contraction of the muscular coat of the intestine may induce an obstinate form of constipation which sometimes amounts to impaction of the bowel, and resists the action of strong aperients given again and again. In most cases of this kind the difficulty can be overcome by repeated doses of the alcoholic extract of belladonna, giving $\frac{1}{4}$ grain every three hours until the pupils begin to dilate. This, the first sign that the

system is beginning to respond to the remedy, is followed quickly by relaxation of the intestinal spasm and copious relief.

In every case, then, of spasmodic contraction, either of voluntary or involuntary muscle, especially in such as occur in children, before resorting for their relief to nerve tonics and antispasmodics we should search carefully for some sufficient sign of local trouble to which the nerve disturbance may be referred. In young people, especially in rickety infants and rapidly growing boys and girls, our first thought should always be of reflex mechanism, and it is only when a fruitless examination has shown our suspicions to be unfounded that we can venture to lay this explanation of the symptoms aside. We are then obliged to fall back upon plain antispasmodic treatment. But even in this case every attempt should be made to keep the nervous system at rest by avoidance of undue excitement, attention to the regularity of the bowels, and in the matter of diet a careful moderation, not only in red meats, but in acids and acid-making articles of food.

The kind of antispasmodic treatment to be employed is of importance. In the case of true epileptic attacks, excessive dosing with large

quantities of bromide is, I believe, a plan of treatment which is better avoided. By such means, no doubt, we may lessen the frequency of the seizures for a time, but sedatives alone have little power to put an end to them altogether. These remedies are best used as aids to the action of nerve tonics, as a means of quieting undue excitement while the more slowly acting drugs are given time to produce their bracing effect. Of the latter I rely chiefly upon ergotine given in conjunction with strychnine. To be effectual the dose of ergotine must be pushed, and this may be done without fear of ill consequence; indeed, little effect can be expected until a good dose is reached. Beginning with 3 grains every four hours, given in conjunction with $\frac{1}{60}$ grain of strychnine, the dose may be increased gradually to 10 grains, and every evening at bedtime a draught containing 20 grains or more of bromide of sodium may be given with infusion of senna and aromatics. In the case of children the most satisfactory results often follow this method of treatment, especially if it be combined with a free country life in a healthy situation. The seaside, or, at any rate, the neighbourhood of the sea, is to be preferred. It is wise to occupy

the child's mind with light employments which interest and amuse; and if he can share these with young people of his own age, who may be trusted not to irritate or excite him, it will be distinctly to his advantage.

Another example of universal spasm which has to be treated with general nervine sedatives is chorea. In the management of this complaint it would be difficult to name a sedative which has not been employed with more or less success. I have obtained very striking results in obstinate cases with ergotine, prescribed in large doses in conjunction with strychnine, in the same way as that recommended for epilepsy. Recently I have been giving chloretone in doses of 3 to 5 grains three times a day, and have been well satisfied with the results. The remedy is one which decomposes very quickly, and should therefore never be prescribed in combination with another drug. It is best given in "cachet," or dissolved in water and sweetened with glycerine. A dose of 5 grains three times a day often causes some drowsiness. If this be so, the dose should be reduced to 2 or 3 grains after the first twenty-four hours.

But cases such as the above, in which we are forced to rely solely upon the action of pure

antispasmodic and tonic remedies for the control of the morbid phenomena, form—in early life at any rate—but a small proportion of the examples of muscular spasm which are being continually brought under our notice. As a rule, in the young the phenomena are purely reflex, the impulse being derived from irritative action at some point of the periphery. In all such cases the employment of general sedatives must be made subservient to the more pressing needs of local medication; but these remedies are still useful as aids to the treatment to reduce the general nervous susceptibility while special local measures are being employed to put an end to the primary cause of the nervous distress.

CHAPTER VI

ON SOME USES OF OPIUM

AMONGST the many new sedative remedies which in recent years have been introduced into the market, opium and its alkaloid morphia seem in danger of losing much of their traditional repute. As a hypnotic opium has been practically superseded by newer and more fashionable specifics, and as a general tranquillizer of nerve and muscle it has been forced far from the position it used once to hold as the very first in importance and usefulness of our therapeutical possessions. For the relief of pain opium and morphia are no doubt still resorted to, but even in this capacity their claims are often set aside in favour of antipyrin, aspirin, and other recent analgesics. Unless pain be actually present, opium is now but rarely prescribed. It is often forgotten that the drug has stimulating as well as sedative

properties, and that, as a general stimulant to the nerves, the brain, and all the organs of life, its value, even for this quality alone, entitles it to a high place in the esteem of the practical physician. Opium and morphia are not quite the same in this respect. Of the two, it is in the former that the quality is most active. Its stimulating effect is best brought out by the use of small doses given at convenient intervals, for in a full dose the sedative influence of the drug is so decided that any primary stimulating effect passes off too quickly to be noticeable. This stimulating action is well seen in cases of indolent ulcers of the skin and mucous membrane. Such sores, which had resisted previous treatment, will be found to show a surprising improvement after only a few doses of the remedy. The pale, unhealthy-looking surface becomes red, and is soon covered with closely set granulations, while its secretion changes from a thin serous fluid to healthy-looking pus. This invigorating influence can be turned to account in the case of obstinate sores occurring in cachectic children. The ulcerative stomatitis which is so common amongst the ill-fed and badly nourished children of the very poor often shows little disposition to heal even when treat-

ment is reinforced by a generous diet and healthy surroundings. When repair is thus at a standstill, a few drops (2 to 5) of laudanum, given twice a day, quickly induce a welcome change in the local conditions, and start an improvement which goes on smoothly to a cure. I have had lately under my care a case of gangrenous varicella in a child of twelve months old. When the patient was admitted into the Shadwell Hospital the sloughs had just separated, leaving a number of clean-cut and very deep ulcers on the child's back. The sloughing process had gone completely through the skin and subcutaneous tissue to the muscular layer beneath them, and the sores had an angry, unhealthy look, and seemed little disposed to heal. An iodoform dressing was ordered, and 1 drop of laudanum was given every four hours. Three days later the appearance of the ulcers had quite changed; the unpromising look had passed away, and healthy granulations were beginning to show themselves at the bottom of the hollows. The opium was continued, and the sores were dressed with zinc lotion. On account of the depth of the pits they were able to fill up but slowly, but improvement went on without any break, and at the end of four weeks

from her entrance the child was discharged from the hospital as cured.

Opium exerts its influence by means of the nervous system through which it gives energy to the capillary circulation, and affects to some extent every organ of the body. There can be no doubt but that the circulation is stimulated by the remedy. The feet become warmer, and the resistance of the body to the depressing influence of cold is very appreciably enhanced. This primary effect of the drug as a stimulant of the nervous system is a quality the value of which must not be forgotten. The nervous trepidation called "stage fright"—the ill-defined sinking apprehension which is familiar to the orator and the player, and is not unknown to the student as he prepares to face his examiner—may be forestalled and disarmed by a small dose—5 or 6 drops—of laudanum taken half an hour or so before his trial is to begin. Again, the nervous tremblings and depression which may be induced by a shock, and are apt to follow a surgical operation, are amenable to the same influence. The above dose repeated, if necessary, several times at intervals of half an hour is usually soon followed by tranquillity and sleep. The same treatment will go far to

relieve the distress of dying persons. Under the influence of a few drops of the tincture the painful uneasiness abates and is succeeded by a period of restful calm, which may be maintained by judicious repetitions of the remedy until the close. Again, the profound mental depression which sometimes afflicts elderly people, making their lives a burden to themselves and to their relatives, may be alleviated by the same means. In this as in the preceding cases the drug acts as a stimulant and something more. It quiets nervous irritability, while at the same time it gives a welcome spur to jaded nerves. There are few cases of nervous unrest in which opium given in these moderate stimulating doses fails to relieve. Children who have been treated surgically for empyema and wear a drainage tube often suffer much uneasiness while the drainage process is going on. Under this treatment their restlessness is calmed, and they are enabled to bear the continued presence of the tube without showing any sign of discomfort. In all forms of illness in which the nervous system is irritable and perturbed the same treatment will be found of service.

When thus given with a view to stimulation

the dose of the drug must be carefully limited, for too large a quantity would defeat our object; and it must be remembered that the susceptibility of the system to the remedy varies greatly in different cases—in adult life as well as in the child. It is wise, therefore, to begin with a very moderate dose lest unwittingly we produce an effect the very opposite to that which we desire. The dose can be repeated at intervals of half an hour until the end we aim at is achieved. In the case of old people with thin-walled dilated hearts this precaution ought to be observed with especial care; and it is advisable to strengthen the stimulating action of the remedy by the addition of 5 grains or so of carbonate of ammonia and 20 drops of sulphuric ether. Again, in the case of young children the same care should be taken to fit the dose to the susceptibility of the patient. In early life the system is well known to be curiously sensitive to the narcotic influence of the drug. But this sensitiveness must not be taken to imply that in infancy the remedy is a hazardous one, and ought therefore to be avoided. It is merely a question of dose, for in suitable cases the drug can always be given with advantage if the proper dose

be ascertained. It is safe to calculate the dose for infants at ¼ minim of laudanum for every three months of life, and this quantity can be repeated every six hours. At the same time it is desirable to warn the nurse never to wake up the child for his medicine, or to give it if there be any sign of drowsiness. With these precautions there is no risk of producing undesirable consequences by the remedy.

By the use of opium in very moderate doses we incur less risk of upsetting the stomach of the patient and giving rise to nausea. In some persons, however, quite small quantities will excite vomiting. Should this be so, the evil effect may often be averted by combining each dose of the sedative with a small quantity of capsicum in the proportion of ½ grain of the powder or 5 to 10 drops of the tincture.

When opium is used for its sedative effect, larger doses are required. The presence of pain renders the patient less responsive to the influence of the drug, so that care must be taken to prescribe a sufficient quantity to attain the end we have in view. In such cases some uncertainty is often felt as to how frequently it is safe to repeat the remedy, and how soon it may be returned to if the first quantity has

proved insufficient. Dr. W. Griffin, who wrote in the first half of the last century, stated that the full effects of a sedative dose of laudanum become visible within the space of half an hour; so that if at the end of that time the pain is still unrelieved, the dose may be given again and again without danger, provided this interval between successive repetitions is maintained.

In the case of elderly people who suffer from a bronchial catarrh with copious expectoration, the incessant cough makes sleep almost impossible, and the patient seems likely to be worn out by the continued disturbance and want of rest. It is of the highest importance to put an end to the harassing cough and limit this excessive secretion, but the medical attendant often hesitates to prescribe an opiate, lest by doing so he hinder expectoration and cause a dangerous retention of mucus in the tubes. Whether or not this result is likely to follow a dose of the sedative depends upon the exact condition of the patient. If his breathing be easy, his skin clear, and his cough quite loose, we may give opium with every prospect of bringing relief; but if we notice any lividity of skin, blueness of the lips, oppression of the chest, or other sign of deficient aeration of the

blood, opium would only do harm, and must not be allowed. It may be accepted as a rule that in all cases of pulmonary catarrh, until the cough is quite loose and secretion free, opiates are inadmissible in any but the most moderate dose, and only then when combined with antimonial or ipecacuanha wine and other remedies which tend to promote free secretion from the bronchial mucous membrane.

When given in sedative doses and pushed boldly opium used to be regarded as a powerful agent in the treatment of fevers and inflammatory conditions—especially those of the abdominal serous membrane. In the old days of antiphlogistic treatment it was the practice in the first place to reduce the violence of the complaint by repeated bleedings and the liberal use of mercurials, and then to administer opium in large and frequent doses either alone or in combination with tartarized antimony. The first part of this treatment has long and deservedly fallen into disuse. According to our modern notions, it is founded upon false conceptions of the nature of fevers and inflammations, and if it were ever of service in the treatment of these conditions—which one is strongly tempted to doubt—has long since ceased

to be regarded with anything but disfavour. But the treatment by opium in full doses stands upon a very different footing, and has much to recommend it. In the case of acute peritonitis —especially that variety which results from perforation of the bowel and extravasation into the peritoneal cavity—surgery, although often of service, has not made us independent of other methods of treatment or less ready to welcome any help which may reach us from the use of drugs. In the case of peritonitis from perforation it was recognized even in old days that in the collapsed state of the patient bleeding and the lowering methods of treatment were out of the question. The physician therefore proceeded at once to the use of opium, relying upon its reputed influence in reducing inflammation, and hoping that by its power of moderating peristaltic movement it might further the organization and adhesion of effused lymph and seal up the rift in the bowel. He was encouraged in this treatment by noticing the remarkable tolerance for the drug displayed by patients of all ages when suffering from abdominal inflammations, however great might be the prostration induced by the illness. Dr. Stokes, in an interesting and instructive paper

which appeared in the first number of *The Dublin Medical Journal*, instanced the case of a boy of twelve who, although exhausted and collapsed, took with great benefit, and without showing any sign of narcotism, 4 minims of "black drop" every two hours. This dose is equivalent to 20 drops of our laudanum. As a result of this treatment, the improvement was so decided that the boy seemed in a fair way to recovery. Unfortunately at this juncture an aperient was incautiously ordered to relieve constipation, and the action of the dose was followed by a return of the worst symptoms, which this time the remedy was unable to relieve. In all such cases aperients should be carefully avoided, however great may be the temptation to have recourse to them. Recovery is dependent upon complete quiescence of the alimentary canal, and rashly to stimulate the contractions of the bowel is only too likely to give a fatal impulse to the disease and render useless all our previous treatment. In another case, to a man of middle age, Dr. Stokes gave 1 grain of opium every hour. The patient took 105 grains of the remedy without any narcotic effect, and recovered completely. Dr. Stokes maintained that in cases where the drug acted

favourably no toxic consequences arose from its use, and looked upon any such untoward effect as a sign that the remedy had no beneficial influence, and had better be avoided. The statements and observations of this distinguished physician have a more than historical interest even in the present day, when the drug treatment of perforative peritonitis has been abandoned in favour of laparotomy and free drainage of the abdominal cavity. In very many cases the change is no doubt greatly to the advantage of the patient, for no one can deny that surgical treatment has been the means of saving many lives which would otherwise have been lost. But all cases of perforative peritonitis are not suitable for operation, and even where this method can be adopted the mortality is high. I submit, therefore, that in all cases where surgical interference is inadmissible, and even in cases where free drainage has been adopted, the opium treatment might usefully be resorted to, more especially as so little susceptibility is shown to the narcotic action of the remedy. I have long been familiar with this tolerance for opium shown in cases of peritonitis even by the youngest infants, and am of opinion that advantage should be taken of it in all cases,

for it must be pushed boldly if we are to obtain full value from the use of the drug.

So far from opium being a remedy inadmissible for infants, on account of the susceptibility of the system at this early age to the narcotic influence of the remedy, its value in the treatment of their complaints can hardly be exaggerated. For the relief of spasm its usefulness cannot be questioned. In cases of convulsions in children, and also in spasmodic conditions of the larynx, the nervous seizures often yield at once to a small hypodermic injection of morphia. For a child of twelve months old $\frac{1}{40}$ grain of morphia may be used combined with $\frac{1}{100}$ grain of atropine, and the injection may be repeated in half an hour if by that time the spasm has not completely relaxed. The addition of atropine modifies the narcotic action of morphia without impairing its influence as an antispasmodic. Still, where the air passages alone are affected it is seldom necessary to resort to morphia in the treatment of spasm in young people, for in grindelia we have an antispasmodic which is superior to all other varieties of sedative in its influence over nervous contraction in those parts. Over general convulsions and spasm of the muscular system generally the remedy has little

or no restraining influence, but in laryngismus and stridulous laryngitis its effect is prompt and decided, and in many cases of asthma we find a ready response to the sedative influence of the drug. The only objection to this treatment is the unpleasant taste of the remedy, but this may be covered to a considerable extent by a liberal flavouring with syrup of orange. The most convenient preparation is the liquid extract in doses of ten, fifteen, or twenty drops every three or four hours.

Opium is of great value in all cases of looseness of the bowels. Whenever it is desired to put a speedy stop to the purging, a small proportion of laudanum should be included in the mixture with the object of delaying peristaltic movement of the muscular coat of the intestine. In cases of colitis where the tenesmus is distressing and the stools contain much blood and mucus, the use of opium by the mouth may be supplemented with advantage by small rectal injections of tinct. opii (for a child 2 to 5 minims) with a few grains of powdered ipecacuanha in ½ oz. of thin boiled starch. This injection may be repeated after each action of the bowels. Again, in cases of cystitis combined with painful spasm of the neck of the bladder, opium is a

useful local remedy. For an adult 3 to 5 grains may be combined with 10 grains of extract of hyoscyamus in a suppository to be used twice a day. The internal administration of the henbane alone is, however, a very satisfactory remedy for this complaint, and a dose of 3 grains given by the mouth every four hours rarely fails to relieve all the painful symptoms in the course of a day or two.

Opium is seldom given in these days to secure sleep unless pain be complained of, and not often then. There is much fashion in medical practice, and it is the custom at present to prescribe chloral, sulphonal, veronal, the bromides, and other modern but not necessarily harmless substitutes for the old-fashioned remedy now so unreasonably misprised. These drugs, however, have dangers of their own, and cannot be continued for long together without a more considerable risk of harm to the patient than is to be feared from a course of the older and time-honoured sedative. When given as a hypnotic, and not with the object of relieving pain, opium should be taken two or three hours before bedtime, as it requires this interval to produce its sedative effect ; and the dose should always be repeated for several nights in succession. In

the delirium and sleeplessness of fevers the drug has a decidedly beneficial and calming influence, and in former times was always regarded as a remedy of the first importance which could be given not only with safety, but with singular advantage, provided the tongue and skin were moist and the pupils not contracted.

It is in cases where the blood is imperfectly oxygenized, as happens whenever the patient is threatened with coma or apnœa, that opium and its constituents are likely to do harm; and this warning may be taken to apply to all other varieties of sedative. As Sir Thomas Watson used to insist, duskiness of the face or any—even the slightest—tinge of purple in the colouring of the lips, should warn us that opium is a dangerous remedy and had better be avoided. On this account the use of opium in cases of acute pneumonia, although advocated by some high authorities, is, I cannot but think, not always unattended with risk. In cases of Bright's disease the remedy is not necessarily to be forbidden. On the contrary, it may be employed with advantage in uræmic convulsions, or even in cases of uræmic dyspnœa, for the respiratory distress arises usually from cardio-vascular spasm affecting especially the branches

of the pulmonary artery, and great relief is often found to follow the action of the sedative. If, however, the kidneys are unsound, the dose of the remedy should be moderate, for its action is more energetic in such cases than where there is nothing to hinder the free working of those organs. This rule applies particularly to cases where the urine is scanty and high-coloured. Should this symptom be noted, if the distress be not too urgent to admit of delay, it is advisable to increase the freedom of secretion by watery purgatives and alkaline diuretics, and when opium is prescribed to combine moderate quantities of the sedative with the same alkalis in liberal doses.

A fear is often expressed of establishing an "opium habit" if this form of sedative be used for long together, and to this fear may possibly be ascribed the neglect into which this invaluable drug is beginning to fall. But if proper care be taken the danger is surely a fanciful one. When the remedy ceases to be required it should be withdrawn as quickly as possible; and with the exercise of care there is little difficulty about leaving it off, even if the drug have been continued for a period of months. The assumed difficulty arises from

[illegible] [illegible] [illegible] [

was then stopped altogether, and the nervous unrest which followed, although very definite and harassing, yielded at once to a dose of 20 minims of the gelseminum tincture, taken at bedtime. This was required on only two or three nights; the nerves then recovered their tone completely.

Young children who have been taking opium for some days for the relief of pain or spasm are as quick as adults to feel acutely the absence of the customary sedative. They show it, however, not by signs of irritability, but by symptoms of threatened collapse. The child lies back with sunken, half-closed eyes, a pallid face and clammy skin, and by his ghastly appearance may excite great alarm. The patient, however, is in no real danger, and only requires food and stimulant to throw off all signs of depression. The best fillip for this condition is a teacup of hot milk containing 30 to 60 drops of brandy.

In the case of morphomaniacs who have undertaken to cure themselves of the habit, and profess that they have done so, the patient's word, unfortunately, is not always to be trusted. If in such a case we are led to suspect that the cure is not as complete as it is asserted to be,

Dr. Edward Smith used to advise an examination of the urine for the presence of morphia. He maintained that at the end of eight days from the beginning of abstinence the drug should have passed completely out of the system. If, then, its presence in the water could be detected after that time had elapsed, he took it as a certain sign that the use of the drug was being secretly continued.

CHAPTER VII

ON THE USE OF SODIUM SALICYLATE IN CERTAIN SEROUS INFLAMMATIONS

IN every case of acute articular rheumatism it is the admitted duty of the medical attendant to lose no time in ordering a course of sodium salicylate, and the practice is amply justified by the speedy improvement which usually follows. But it is not only in cases of rheumatism where the joints are affected that the salicylate is of service. Inflammation excited by the rheumatic microbe is found to attack also the serous membranes of the body. That this should happen continually in the case of the peri- and endocardium is conceded by every one, but there is not the same willingness to admit a similar source for inflammation of serous membranes in other situations. Why this should be so—why, for instance, a serous membrane in the abdominal cavity should be

held to be exempt from a source of illness to which a serous membrane in the thorax is admitted to be prone is a mystery of which I have never heard a satisfactory explanation. From personal clinical observation I believe that appendicitis frequently, and peritonitis occasionally, owe their origin in rheumatic subjects to the action of the specific organism, and this without the occurrence of any sign of articular inflammation. Pericarditis in the younger children is, we know, sometimes present without any complaint of swelling or discomfort about the joints, and in the same way I believe that the appendix may often suffer from rheumatic inflammation although the joints remain free. An absolute proof of this source for the serous inflammation is not easy to arrive at; but the occurrence in any such case of speedy improvement under anti-rheumatic treatment should afford testimony the significance of which could not be entirely ignored; and if in the course of the attack there arose some fresh manifestation common to rheumatic illnesses the suggestive evidence thus supplied would deserve to be carefully weighed before being rejected as empty or inconclusive.

Some years ago I saw in consultation with Dr. A. B. Rendel a robust little boy of two and a half years who was suffering from acute appendicitis. It was the third day of the illness, and I found the child lying with his right knee drawn up, presenting all the characters of a sharp attack of the inflammation. There was in addition a soft and evidently quite recent systolic murmur heard at the apex of the heart. Now, several months previously I had had an opportunity of making a thorough examination of the boy, and am sure that at that time the heart sounds were absolutely healthy. Moreover, Dr. Rendel had examined the heart with the other organs at the beginning of the illness two days before my visit, and was satisfied that the heart sounds then had been perfectly clear. There was no pain or tenderness complained of in the joints, and the illness had in all respects the features of an ordinary attack of inflammation of the appendix. Sodium salicylate was ordered, and the inflammation very quickly subsided; but the heart murmur persisted, and the child's temperature ranged from 99° to 100° for ten days after the signs of appendicitis had disappeared. I heard some years later from

Dr. Rendel that the murmur was still audible, but that compensation was complete.

In this interesting case the cardiac murmur arose suddenly in the course of an inflammatory disease, and the presumption is strong that it also was due to inflammatory agency. The patient had been quite healthy up to the time of the attack. He was not anæmic or cachectic, or in any way ill-nourished, or in such a condition as originates and maintains a temporary disturbance of function. Moreover, the murmur did not subside as the disease passed off, but remained as a permanent feature, which even in a cursory examination could hardly escape attention. It is difficult, then, to reject the belief that there must have been some connection between the inflammation in the abdominal cavity and the valvular inflammation, or that the two lesions were a consequence of the same general cause. That this cause was not an infection of the valve by some virulent microbe such as the *bacillus coli* is evident from the mild character of the symptoms. Infective endocarditis is a complaint of the utmost gravity, which gives rise to urgent and distressing symptoms, and too often proves fatal. In any case the illness is long and tedious,

and convalescence imperfect and slow. In the case recorded the cardiac complication in no way increased the severity of the attack, for this ran a short and easy course and soon came to an end. The subsidence of the disease followed very quickly upon the adoption of antirheumatic treatment; but leaving that out of the question, it is difficult to suggest any other explanation of an inflammation attacking at the same time a serous membrane in two different parts of the body than to presume that in each case its origin was the same, and, as the valvular inflammation had all the familiar characters of a mild rheumatic endocarditis, to attribute the inflammation of the appendix to a similar rheumatic source. Were it otherwise we should be forced to conclude that a mild valvular inflammation can be set up by other than rheumatic agency in a child who is free from infectious fever or constitutional disease, and whose insignificant general symptoms forbid the suspicion of infection of the valve by a virulent micro-organism. Personally, I believe rheumatic appendicitis to be a common complaint. The inflammation is severe at first, and gives rise to all the symptoms which we are used to associate with this form

of illness; and in the absence of other manifestations of the rheumatic dyscrasia I know of no other way of distinguishing it from the infective variety than by observing the almost immediate improvement which sets in under the influence of the special treatment. In former days when no one ever thought of operating—at any rate, at an early stage—and every case of "typhlitis" was treated by rest and opium, the patients usually recovered after an illness of a week or ten days. Now, under the sodium salicylate, improvement in this, the rheumatic form of the complaint, generally begins well within forty-eight hours of taking the first dose of the medicine, and is usually completed before the end of the week.

Instead of a circumscribed local inflammation the illness may take the shape of a severe general peritonitis. The following case seems to me to be capable of no other explanation than that it was an instance of rheumatic inflammation affecting the peritoneum.

A young man about twenty-two or twenty-three years of age, well built and robust, left Liverpool on a very cold day at the end of his holiday to return home. He entered the

train in perfect health, but in the course of the journey was seized with violent pains in the abdomen, and felt very ill. On arriving at Euston it was all he could do to creep into a cab and drive to his home at Surbiton. Dr. H. F. T. Chambers was at once sent for, and found the young man in a very grave state, suffering from a general peritonitis. Twenty-four hours later I saw the patient with the doctor in consultation. The young man's condition was then most serious; his abdomen was tense, greatly distended, and everywhere excessively tender; his pulse small and hard, and his face pale and drawn and ghastly in the extreme. He was so desperately ill that I spoke with great caution as to his chances of recovery, which I feared were of the slightest, and Dr. Chambers was of much the same opinion. As there was a strong rheumatic tendency in the family we ordered 20 grains of sodium salicylate to be taken every three hours, on the chance of the inflammation being of this nature, but I left the house with small expectation that this or any other treatment would be found of the slightest avail. In spite, however, of our gloomy anticipations, the result was as happy as it was unexpected.

In twenty-four hours after the first dose of the medicine there was a great and unmistakable improvement, and at the end of another twenty-four hours the patient was declared to be out of danger. He was quite convalescent by the end of the week.

Now this case, which had all the appearance of an attack of general peritonitis of the most virulent character, changed its whole aspect with unlooked-for rapidity, and it is surely not unreasonable to assume that this fortunate result had some connection with the treatment adopted. I may repeat that the condition of the patient at my visit appeared to both Dr. Chambers and myself to be almost hopeless, and yet in the course of twenty-four hours the improvement was such as to justify the most sanguine expectations. If it be conceded that this happy change was due to the sodium salicylate the inference that the inflammation of the peritoneum was of a rheumatic nature seems to me to be unavoidable. The after-history of the case is interesting. I heard recently that the patient left Surbiton shortly after his recovery, and Dr. Chambers lost sight of him. He learned, however, indirectly, that the young man had remained

perfectly well for two years, and had then had an attack of appendicitis, for which he was operated on and recovered. It would be interesting to ascertain the nature of this last attack, of which I have been able to learn nothing. It may very possibly have been of the same nature as the first. Certainly at the time of my visit, if the physical signs had been limited to the right side of the abdomen, I should scarcely have dared, in view of the extreme urgency of the symptoms, to take the responsibility of opposing an operation.

I venture to submit that the two cases narrated above furnish evidence which cannot be lightly dismissed as to the nature of some attacks of serous inflammation in the abdomen, and suggest, at any rate, the possibility that these may at times have a rheumatic origin. If this be granted, it is advisable in all cases of appendicitis to begin the treatment with a few substantial doses of the sodium salicylate, for the rheumatic element cannot be excluded until the result of treatment by this remedy has been ascertained.

I have seen not one or two, but many, cases of appendicitis in which the question of operation was being considered which underwent

such rapid improvement under this treatment that all idea of surgical interference was quickly set aside. If the treatment fail—that is, if no improvement be noticed within thirty-six hours of taking the first dose of the salicylate (which should be of substantial quantity and given every three hours)—the assumption of a rheumatic origin for the inflammation may be definitely abandoned.

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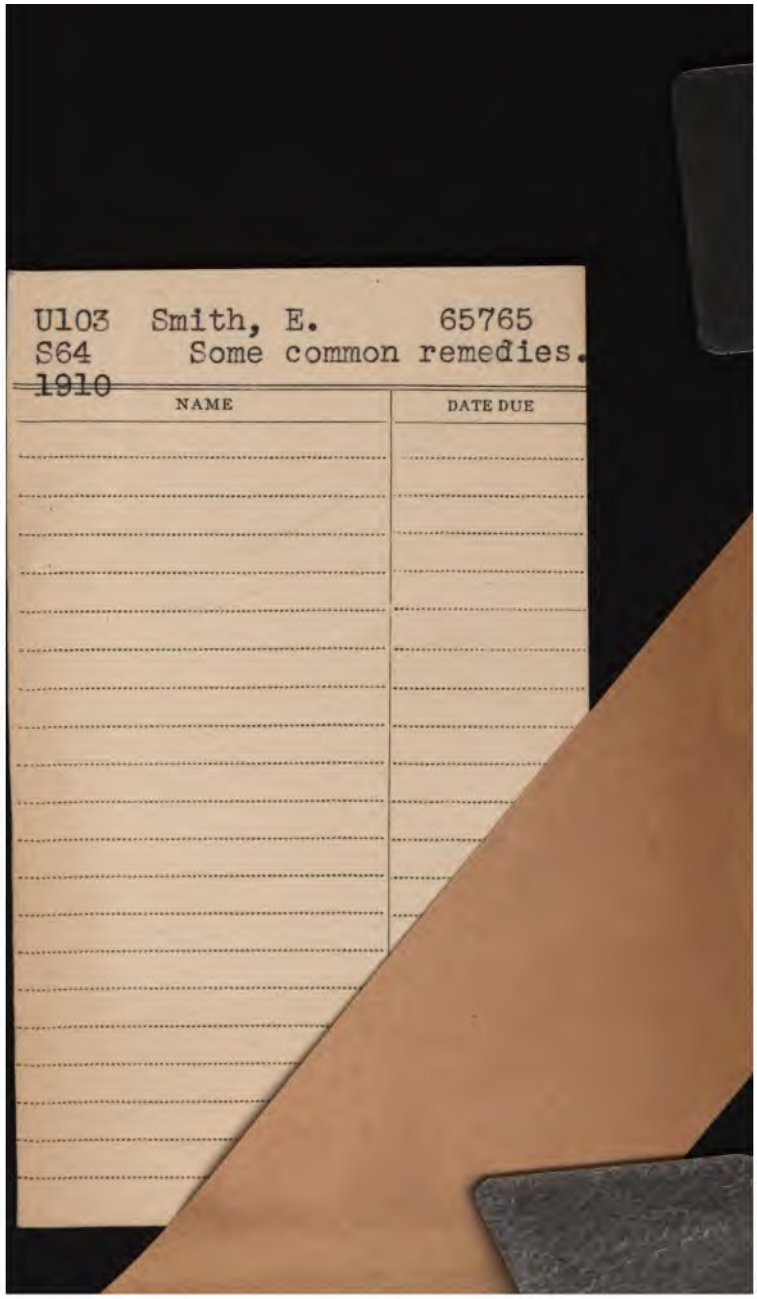
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